

Invoice Generator Using Process Definition Document with Robotic Process Automation

Surendhiran Tamilalagan*

B.Tech. Student, Department of Electronics and Communication Engineering, SASTRA Deemed to be University, India

Abstract: Robotic Process Automation (RPA) is a technology that has grown exponentially over the years, due to its usability in the process of automation process. Invoice management is a function within the organization related to the allocation of funds and is responsible for processing the invoice process for transactions between the seller and the distributor. As with all other financial processes, invoice management has become a formal challenge for organizations. The department in charge cannot overcome this problem as the maximum number of invoices should always be considered based on raw material of various kinds. Invoice process management is also known as Process Document Document in RPA technology, which reflects the automated process of capturing the flow of business process with a high degree of accuracy.

Keywords: Automated RPA testing, process definition document, robotic process automation, UiPath.

1. Introduction

The process definition document describes the business process selected for exchange using UiPath Robotic Process Automation (RPA) technology. The document describes the sequence of actions performed as part of a business process, and the document serves as the basis for the developers, providing them with the information needed to implement the automated robots process in the selected business process. The document describes the sequence of steps that take place as part of a business process, the conditions, and rules of the process before automation, and how they are thought to work after automation, partially or completely. This specification document serves as the basis for the developer, providing them with the necessary information for the automated use of the robot in the selected business process.

2. Process Description

This document is about the invoice process for invoicing generator.com. The process is done in person by navigating to invoice generator.com. Here, invoices are generated by completing a web-based form based on the data made available to the person performing the process in an excel spreadsheet.

Business objectives and expected benefits of the Business Process Owner after the default business process selected are:

1. Reduce processing time per item by 90%
2. Reduction and/or elimination of manual errors during

invoice generation.

3. Improved consistency of process execution as the robot can be scheduled to run at any time

3. Robotic Process Automation

A. A Glimpse of RPA

Robotic Process Automation is a technology that provides automated tools for actionable actions and processes at the UI level. A first-class citizen in the RPA is a software robot (sometimes also called a "bot"), which can perform all the basic actions a person performs through the user interaction of available applications, including legacy software. Precisely, the robot can press buttons, copy data from various applications, but also use APIs, if necessary. Procedures appropriate for the use of the RPA are those that are repetitive enough to justify automatic, but not systematic and complex enough that they require an old software development project. RPA providers provide platforms for explaining and using such software robots. The mature RPA frameworks consist of at least the following three components: the descriptive or modeling part of the robots (this is usually done visually), the partial design and integration of existing robots and existing applications, and, finally, the partial, commonly called orchestrator, using robots, schedules and monitor their execution. In addition, advanced RPA solutions also provide artificial intelligence (AI) skills, such as natural language processing (NLP), machine learning, and computer imaging, for better processing of written or visual robotic input. Also, robots may be maintained (requiring periodic human installation) or unattended (operating independently). They can run in space, in the clouds, or in the visible. The RPA market is very strong and is divided. However, over the years, suppliers of the following three RPA tools: UiPath, Automation Anywhere, and Blue Prism - have been appointed as leaders in the field by independent market research companies such as Gartner and Forrester. Based on the most recent investment round, UiPath has reached a "decacorn" status, that is, more than \$ 10 billion. In addition to those companies, a few competitors offer RPA solutions: WorkFusion, EdgeVerve, Kofax, etc. Although the RPA offerings above are similar in scope and functionality, its implementation and design options are very different. Therefore, throughout the paper, we will focus on the UiPath

*Corresponding author: suryasimman@gmail.com

platform, which is undoubtedly the largest provider of RPA tools, based on company size and rating, market share and scope and depth of solution. In addition, in our study, it has the most advanced RPA testing support, which makes it an excellent candidate for our RPA test research and automation.

Furthermore, we are more knowledgeable in UiPath technologies (the 2nd author is an UiPath RPA developer with 2 years of industrial experience). Yet, we will also comment on other tool providers in certain contexts.

B. Using UiPath

In this section, we will provide many technical details about the RPA framework of UiPath. The part where the robots are designed is called UiPath Studio [21]. It is based on the Microsoft Workflow Designer [7], which is an IDE for image processing for Windows Workflow Foundation [11] applications. The robotic functions can be modeled at UiPath Studio with three main types of workflow diagrams [6]: sequence, flow chart, and country machine (and one additional for different management). A series is a simple representation of a sequence of tasks one after the other (also allows if you are a task). The flowchart adds additional flexibility with resolutions and arrows between any functions. It is similar to the UML drawings of the function, but also the BPMN models. Finally, the state machine displays even more than the flowchart, allowing for conditional conversion. They are similar to the old UML state machines. The above structures may contain data in the form of graphic arguments and local variables. And, most importantly, all diagrams can be embedded in order with each other, e.g., we may have a flowchart sequence containing local state equipment at specific nodes. Workflow is created by dragging and dropping from existing basic functions (e.g., code captions written in C #) or other existing workflows. Basic functions, for example, can read and write data from and to several formats, can work with all kinds of variables, can create reports, capture mouse and keyboard clicks and convert handwriting, printed text, or in-image text into a machine-readable text using Optical Character Recognition (OCR). These functions can be programmed directly or, more easily, performed using the UI recording tool tool. Also, the RPA can handle complex tasks using advanced plugins, which include machine learning, computer vision, or cognitive automation, which works even in virtual or remote environments. In terms of desktop interactions (VDIs), UiPath was one of the first to provide automatic UI for technologies such as Citrix, capable of solving the problem of accessing basic UI objects (buttons, text fields, etc.), the difficulty here being -VDI only provides remote desktop imagery. Some RPA tool providers offer similar features and models, each focusing on one aspect or another. Due to space constraints, we will not include you here.

4. Traditional Invoice Generating Technique

The invoice management process required essential human resources as a 5-member team and lead that also faced many challenges. If the sample study to process traditional invoices the total number of invoices administered annually is 1,00,000

by the 5 staff of the accounting team, which divides into 20,000 invoices processed per job per year. Since each employee works 220 days on average a year, that means the employee handles 100 invoices per day, which means that each employee works 8 hours a day and each invoice takes 5 minutes to process. Although Robotic Process Automation offers attractive benefits and ROI in the financial services industry, especially in automated office operations, such as automation and invoice processing. And Robotic Process automation makes a significant impact by automatically providing business process in back-office accounting or data entry services that reduces human resources, costs, personal error, and provides a high "Investment return" to the business. Accounting and invoicing processing is an important part of the whole business as office functions. Organizations follow the transaction between the seller and the supplier.

5. Challenges in Traditional Method

1. Human error is a major challenge in this common invoice management process as it requires extensive communication and manual data entry.
2. Delays in loading the invoice in person are also a problem as it costs a lot of time.
3. Managing the team in relation to a variety of tasks and tasks requires competent professional leadership, which can cost a business as it requires additional management efforts.
4. Issuing an SLA - (Service Level Agreement) lists the issues that shape the process such as availability of rest and rest time, support hours, response and repair times, SLA liabilities, and termination rights.
5. Staff equity is a sensitive issue as it requires monitoring and management over performance and reliability, cost pressures, application base, identification access management, etc.
6. Business owners and organizations cannot expect to know some of the things such as earthquakes, natural disasters, floods, hurricanes, typhoons, and epidemics (COVID-19) that directly affect economic losses following an incident.

6. How RPA Works in Work Management

RPA can generally be used in any process as Decisions are allowed to flow separately, based on the rules The same step is performed in the open case, the data directed to the Compatible template is collected and entered in a repetitive manner. Robotic Process Automation Software typically looks to automatically perform the following tasks that are most effective in checking new invoices taking available invoices Checking invoices available. RPA robots often scan a given folder for new invoices After receiving a file RPA robot collects Data Release RPA robots read and extract information from invoices using Optical Character Recognition (OCR) and Natural Language Processing (NLP) Then the robot reads. certain fields on invoices that need to be updated in ERP. The next step is to verify the invoice details such as company code, supplier number, and VAT on the website. The RPA robot unlocks the ERP key for all fields that need to be filled, based

on corporate usage.

7. Benefits of Using RPA in Invoice Management

Implementing an RPA in routine manual labor such as invoicing processing can be a lifesaver. Many business decisions are driven by money in some way. And automating your boring processes is a great way to save money on work and expensive data errors.

- Paper billing: No more paper collection, Storage Use. No more old document collection. While searching for old records can be difficult.
- Improves Accuracy: Invoices compared to POs and shipping documents. information is always up to date and added automatically. Without requiring data encryption across all systems, human error decreases slightly.
- Special Production: Through automation it not only assists in accounting, but also manages in the management of invoices of slow management, and handling of high-quality functions that support business objectives.
- Improved Reliability and Authentication: RPA automation makes the service available 24 x 7 365 days per year. Through RPA business organizations they can now deliver improved services that benefit the industry and increase their efficiency.
- Reduce Risk of Fraud: Fraud is reduced by a large amount such as invoice and check for exposure with construction confirmation.
- Compliance and Audit Methods: The RPA can be set to meet all compliance standards. Enable the availability of fully maintained logs, and every step taken through a particular process is recorded in the history test.
- Investment Recovery: Sending RPA exchange companies can expect to see full ROI fulfillment.



Fig. 1. Overview of the whole process

8. Final Discussion and Future Work

The main purpose of this short paper is to bring the RPA

exam to the attention of the educational community. There is a good chance of conveying and harmonizing research results to improve the automation of RPA testing - cf. [2]. We think this is a good effort given the real impact it can have on a fast-growing business environment. Although RPA concepts can be mapped to existing experimental research methods, there are still many non-minor challenges that need to be addressed. We are at the beginning of our research project used to evaluate the RPA, but we have identified a few of the methods we plan to test ourselves. First, we will focus on completing the UiPath model modification and testing the open source MBT tool, but also the commercial offerings from Conformiq and Smaresting (with educational licenses). Then, we will turn the generated tests back into the UiPath Test Suite to be performed. We will do this on medium-sized business models that we already have access to. If successful, we will expand our work as an open source MBT plugin in the UiPath app market area and collect additional feedback from UiPath developers and testers. Using the lessons learned from this trial, we will try to repeat this process with similar models from other RPA providers (Automation Anywhere, Blue Prism, etc.). Therefore, we will only need to adapt the modification to the new model format (these can be provided as MSc student projects). We have already identified a few models that can be exported to XML. Finally, in a bold attempt, we will investigate the problem of automation testing in the context of hyper-automation, a new buzzword, written by Gartner [12] as a number. 1 in the top 10 lists of technical trends. Hyper automation refers to RPA developed by AI, NLP, analytics, process mining, and other technologies that allow for situations where human decisions are required, including flexible areas and cognitive abilities. This will require an intelligent combination of MBT and AI testing, which is also an emerging testing platform

References

- [1] Arcuri, "An experience report on applying software testing academic results in the industry: we need usable automated test generation," *Empirical Software Engineering*, vol. 23, no. 4, 2018.
- [2] L. Briand, D. Bianculli, S. Nejati, F. Pastore, and M. Sabetzadeh. 2017. The Case for Context-Driven Software Engineering Research: Generalizability Is Overrated.
- [3] M. Cernat, A.-N. Staicu, and Stefanescu A. 2020. Improving UI Test Automation using Robotic Process Automation. In 15th Int. Conf on Software Technologies.
- [4] Marina Cernat, "Towards Automated Testing of RPA Implementations."